PRESENCE OF AMYLOID AND DNA IN SENILE PLAQUES, NEUROFIBRILLARY TANGLES AND NEUROPIL THREADS: ALZHEIMER'S DISEASE: A NEUROSPIROCHETOSIS?

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Recently we reported that spirochetes were found in blood, cerebrospinal fluid in Alzheimer's disease and were isolated and cultured from the cerebral cortex. When using scanning electron microscopy and atomic force microscopy these isolated and cultured spirochetes possess axial fialment which taxonomically distinguishes spirochetes from other Bacteria.

The 4',6-Diamidine-2'-phenylindole dihydrochloride (DAPI) binds selectively to DNA and forms strongly fluorescent DNA-DAPI complexes. DNA staining, that employs DAPI is the most popular method for the detection of cell culture Mycoplasmas. We expected that DAPI would also bind to the DNA of other Bacteria, namely to the DNA of spirochetes. If senile plaques, neurofibrillary tangles and neuropil threads contain spirochetes, they would consequently also contain DNA. When using this selective and sensitive fluorescent DNA stain, not only reference spirochetes may be visualized, but also senile plaques, neurofibrillary tangles as well as neuropil threads. DNase pretreatment abolish the DAPI staining of these structures, indicating that they, indeed, contain DNA. Reference spirochetes when stained with Thioflavin S, exhibit also a yellow-green fluorescence similar to those of the AD-type changes indicating that they contain an amyloidogenic protein. An immunohistochemical investigation also showed that reference spirochetes contain the amyloid precursor protein (APP) of AD, or at least an APP-like (APLP) protein. These observations suggest that the helically shaped structures in the AD type changes containing both amyloid and DNA may well correspond to spirochetal amyloid and DNA and seem to reinforce the hypothesis that spirochetes may play a role in the aetiology of AD.

Source: https://www.industrydocuments.ucsf.edu/docs/gzdb0000